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## (54) CYTOKINE INDUCING AGENT FOR USE IN ORAL ADMINISTRATION

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide a cytokine inducing agent for use in oral administration which is useful in treating various diseases such as infectious diseases, autoimmunity diseases, inflammations, tumors by which production of cytokines such as IFN- $\gamma$ , IL-8 and the like in the living body can be promoted by oral administration thereof.

SOLUTION: A microorganism cell body, on the surface of which there is expressed cytokine inducing substances as to fusion protein, is used as cytokine inducing agent for use in oral administration. As to the above-mentioned microorganism, a lactobacillus such as Lactobacillus casei and the like may be used. The above-mentioned fusion proteins are the expressed products of DNA being combined in order with signal sequences, genes of cytokine inducing substances, and membrane anchor sequences. When a listeria hemolysin is used as to the gene of cytokine inducing substance, then IFN- $\gamma$  can be induced, and when a flagellar protein flagellin of *Salmonella* is used as to the gene of cytokine inducing substance, then IL-8 can be induced.